

**Homework 5**  
**Principles of Economics**  
**Prof. Sarah West**  
**30 points**

1. (5 points) A profit-maximizing firm in a competitive market is currently producing 150 units of output. It has average revenue of \$15, average total cost of \$12, and fixed costs of \$250.

- a. What is profit?
- b. What is marginal cost?
- c. What is average variable cost?
- d. Could this firm decrease average total cost by being larger or smaller, or are they at the average-cost minimizing scale?

2. (7 points) Read the following excerpt from “Dairymen hurt by falling prices for their milk,” by Courtenay Edelhart, January 29, 2009 *The Bakersfield Californian*:

The California Department of Food and Agriculture each month sets a minimum price food processors must pay dairies for their milk, based on a formula that factors in commodity prices on the Chicago Mercantile Exchange.

The state recently announced a 35 percent drop in the mandated minimum price. That price translates into \$1.51 a gallon in January, and 98 cents a gallon next month, reflecting...the recession. When consumers eat out less and buy fewer groceries, not as many families, restaurants and manufacturers buy milk and dairy products.

Dairies say the new minimum is less than it costs to produce milk. The January price already was causing dairies with at least 1,000 cows to lose about \$100,000 a month, according to the industry trade group Western United Dairymen.

- a. Graph the market for milk and, on a companion graph, the **short-run** cost curves for the typical dairy farmer. You may assume that the dairy farms are perfectly competitive. Label the current milk price using a number from the article. Then explain your graphs.
- b. What will happen to the dairy farms and the milk market in the long run? Use a graph of the milk market and a graph of the typical dairy farm to explain.

3. (8 points) The local cable company is a monopoly. The demand for cable service can be represented by  $P = 160 - 2Q$ . Its marginal revenue curve can be represented by  $P = 160 - 4Q$ . The monopoly faces a constant marginal cost of \$8.

- a. What is the cable company’s profit maximizing level of output and price? Give a numerical answer, and show graphically.

- b. What is the amount of consumer surplus under monopoly? State the number and show on your graph.
- c. If the company were forced to behave as a perfect competitor, what output would be produced and what price would be charged? What would consumer surplus be?
- d. Calculate the efficiency loss of the monopoly, and indicate the area of this loss on your graph.

4. **(6 points)** Among monopoly, oligopoly, monopolistic competition, and perfect competition, how would you classify the markets for each of the following drinks?

- a. Tap water
- b. bottled water
- c. cola
- d. beer

5. **(4 points)** Monopolistically competitive firms price above marginal cost, like a monopoly. Why aren't they regulated like monopolies?